

CLAIMS

What is claimed is:

1. A collapsible steering assembly comprising;
a stationary guide bracket for attachment to a vehicle,
a steering mechanism having a longitudinal steering mechanism axis, and
a steering mechanism support including a plurality of guide rods arranged about a common collapse axis in non-parallel relationship to said steering mechanism axis and interconnecting said guide bracket and said steering mechanism and supporting said steering mechanism for axial movement along said collapse axis in response to application of a predetermined collapse force to said steering mechanism.
2. An assembly as set forth in claim 1 and including a plurality of steering shear elements interconnecting said guide rods and said guide bracket for preventing movement of said steering mechanism relative to said guide bracket and shearable in response to application of the predetermined collapse force on said steering mechanism for allowing said guide rods and said steering mechanism to move relative to said guide bracket.
3. An assembly as set forth in claim 2 wherein said guide bracket supports said guide rods in fixed relationship to one another.
4. An assembly as set forth in claim 3 wherein said guide rods are straight.
5. An assembly as set forth in claim 4 wherein each of said guide rods comprises

a steering tube extending from a front end to a rear end.

6. An assembly as set forth in claim 5 wherein each of said steering shear elements comprises a bushing surrounding each steering tube and engaging said guide bracket.

7. An assembly as set forth in claim 5 wherein said guide bracket includes a front bracket interconnecting said front ends of said steering tubes and a rear bracket supporting said rear ends of said steering tubes and said steering mechanism, said front and rear brackets and being spaced from and on opposite sides of said guide bracket, whereby said guide bracket is spaced along said steering tubes from and between said front and rear brackets and.

8. An assembly as set forth in claim 7 wherein said steering tubes comprise four tubes spaced from one another in a quadrangle.

9. An assembly as set forth in claim 7 wherein said rear bracket includes a connector for attachment to the vehicle.

10. An assembly as set forth in claim 7 wherein said rear ends of said steering tubes extend through said rear bracket.

11. An assembly as set forth in claim 7 and including a knee bolster for absorbing impact energy during a crash condition, a plurality of bolster guide rods arranged about a

second collapse axis and interconnecting said guide bracket and said knee bolster and supporting said knee bolster for axial movement along said second collapse axis in response to application of a second predetermined collapse force to said knee bolster.

12. An assembly according to claim 11 and including a plurality of bolster shear elements interconnecting said bolster guide rods and said guide bracket for preventing movement of said knee bolster relative to said guide bracket and shearable in response to application of the second predetermined collapse force to said knee bolster for allowing said bolster guide rods and said knee bolster to move relative to said guide bracket.

13. An assembly according to claim 12 wherein said guide bracket supports said bolster guide rods in fixed relationship to one another.

14. An assembly according to claim 13 wherein said bolster guide rods are straight.

15. An assembly according to claim 14 wherein each of said bolster guide rods comprises a tube.

16. An assembly as set forth in claim 15 wherein each of said bolster shear elements comprises a bushing surrounding each of said bolster tubes and engaging said guide bracket.

17. An assembly as set forth in claim 15 wherein said bolster tubes comprise four tubes spaced from one another in a quadrangle.

18. An assembly as set forth in claim 15 wherein said bolster tubes have front and rear ends and, said knee bolster connected to said front ends of said bolster tubes and said rear bracket supporting said rear ends of said bolster tubes,

said knee bolster and said rear bracket being spaced from and on opposite sides of said guide bracket.

19. An assembly as set forth in claim 18 wherein said guide bracket includes an upper block having bores therethrough with said steering tubes extending through said bores and a lower block having bores therethrough with said bolster tubes extending through said bores in said lower block.

20. An assembly as set forth in claim 19 including a second plurality of steering shear elements interconnecting said rear bracket and said steering tubes for preventing movement of said steering tubes relative to said rear bracket and shearable in response to application of the predetermined collapse force to the steering mechanism for allowing said steering tubes to move through said rear bracket.

21. An assembly as set forth in claim 15 including an energy absorber system for absorbing energy during movement of said steering mechanism and said knee bolster respectively relative to said guide bracket.

22. An assembly as set forth in claim 21 wherein said energy absorber system includes a first anvil-strap device interconnecting said steering tubes and said upper block.

23. An assembly as set forth in claim 22 wherein said bolster tubes are disposed in at least one pair on either side of said steering tubes.

24. An assembly as set forth in claim 23 wherein said bolster tubes are parallel to said steering tubes.

25. An assembly as set forth in claim 7 including a pedal assembly pivotally connected to said rear bracket for permitting pivotal movement of said pedal assembly in response to movement of said steering tubes relative to said rear bracket .